Is COVID-19 transmitted through breast milk? Study suggests not likely

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As the novel coronavirus continues to spread around the world, so do the concerns of breastfeeding mothers. Although there have been no documented cases to date of an infant contracting COVID-19 as a result of consuming infected breast milk, the critical question of whether there is potential for this form of transmission remains. In a recent study,

researchers from University of California San Diego School of Medicine and University of California Los Angeles collaborated to find the answer.

The study, published August 19, 2020 in the online edition of *JAMA*, examined 64 samples of breast milk collected by the Mommy's Milk Human Milk Research Biorepository from 18 women across the United States infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Although one sample tested positive for viral RNA, subsequent tests found that the virus was unable to replicate, and thus unable to cause infection in the breastfed infant.

"Detection of viral RNA does not equate to infection. It has to grow and multiply in order to be infectious and we did not find that in any of our samples," said Christina Chambers, Ph.D., MPH, co-principal investigator of the study, professor of pediatrics at UC San Diego School of Medicine, director of Mommy's Milk Human Milk Research Biorepository and co-director of the UC San Diego Center for Better Beginnings. "Our findings suggest breast milk itself is not likely a source of infection for the infant."

The current recommendations to prevent transmission while breastfeeding are hand hygiene and sterilizing pumping equipment after each use.

"In the absence of data, some women infected with SARS-CoV-2 have chosen to just not breastfeed at all," said Grace Aldrovandi, MD, co-principal investigator of the study, chief of the Division of Infectious Diseases at UCLA Mattel Children's Hospital and a professor of pediatrics in the David Geffen School of Medicine at UC Los Angeles. "We hope our results and future studies will give women the reassurance needed for them to breastfeed. Human milk provides invaluable benefits to mom and baby."

Early breastfeeding is associated with a reduced risk of sudden infant death syndrome and obesity in children, as well as improved immune health and performance on intelligence tests. In mothers, breastfeeding has been associated with lower risks for breast and ovarian cancer, cardiovascular disease and type 2 diabetes.

The researchers also mimicked conditions of the Holder pasteurization process commonly used in human donor milk banks by adding SARS-CoV-2 to breast milk samples from two different donors who were not infected. The samples were heated to 62.5°C for 30 minutes and then cooled to 4°C. Following pasteurization, infectious virus was not detected in either sample.

"This is a very positive finding for donor milk, which so many infants, especially those born premature, rely on," said Chambers. "Our findings fill in some important gaps, but more studies are needed with larger sample sizes to confirm these findings."

Chambers said future work will not only look at whether breast milk is free of the virus, but also whether it contains active antiviral components. For example, antibodies to SARS-CoV-2 that women may produce after exposure to the virus and then transfer to their infants through breast milk, protecting them from COVID-19.

More information: Christina Chambers et al, Evaluation for SARS-CoV-2 in Breast Milk From 18 Infected Women, *JAMA* (2020). DOI: 10.1001/jama.2020.15580

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